

Original Research

Cash Holdings, Financial Leverage, and Excess Stock Returns: The Role of Firm-Level Uncertainty

Seyed Fakhreddin Fakhrehosseini¹ 

Department of Accounting, Management and Accounting Faculty, Islamic Azad University Tonekabon Branch, Tonekabon, Iran

Meysam Kaviani

Department of Finance, Management and Accounting Faculty, Islamic Azad University Karaj Branch, Alborz, Iran

Abstract

Cash is one of the most important and critical resources in each profit entity, and exploring its relevance to stock returns and the extent to which it is influenced by the firm-level uncertainty is one of the most important issues in corporate decisions. The present study investigated the relationship between cash holdings, financial leverage, and excess stock returns considering the role of uncertainty level. This study uses all publicly firms on Iranian stock exchange. Data base on records of financial statements and market data of all Iranian firms that are listed on Iran Stock Exchange, and that are subject to the regulations by the Capital Market Authority in Iran. In addition, we use data from Iranian stock exchange for the period 2004–2018 to construct variables based on the information contained in financial statements. The results indicated that financial leverage and changes in cash holdings affect excess stock returns, and cash holdings are affected by the firm-level uncertainty. This paper fulfils an identified the role of Firm-level uncertainty in cash management, capital structure, and investment decisions.

Keywords: Uncertainty, Leverage, Cash Holdings, Excess Stock Returns.

¹ Corresponding author's Email: f.hossini@toniau.ac.ir

Introduction

Since cash is a non-productive asset, its excessive holdings due to low returns result in a reduction in the firm's efficiency and value. On the other hand, low cash holdings may cause the firm to fail to take initiatives in investing in projects with a positive net present value (NPV), and increase the likelihood of financial problems. Therefore, efficient management motivated to maximize shareholder wealth seeks to maintain an optimal amount of this asset. Ozkan and Ozkan (2004) argue that the personal interests of executives require them to keep a high level of cash holdings at the expense of the loss of shareholder interests. However, keeping cash can reduce firms' need for expensive external financing for future investment opportunities. If the costs of choosing false external financing or the costs of financial crises are very high, firms will try to hold excess cash in order to deal with unexpected cash deficits and to finance investments with a positive net present value (NPV) (Ozkan & Ozkan, 2004). The uncertainty effect on the firm's cash holdings has attracted the attention of many researchers in the field of finance and economics. A number of studies have also been considered corporate uncertainty (Pinkowitz et al., 2012; Gao & Grinstein, 2014) and aggregate uncertainty (Foley et al., 2007; Acharya et al. 2013) as a stimulus for corporate cash holdings. For example, Gao and Grinstein (2014) considered stock return volatility as uncertainty, divided it into systematic and individual components, and showed that systematic components had a significant effect on cash holdings. In addition, a rich article suggested that uncertainty can reduce firm investment by increasing the expected and observed value, making a firm wait for a series of additional information before carrying out any operation (Bernanke, 1983; Bloom et al., 2007). This study explores uncertainty measured by the stock return volatility following the method used by Gao and Grinstein (2014), Leahy and Whited (1996), Bloom et al. (2007), and its role in the relationship between cash holdings, financial leverage, and excess stock returns. Han and Qui (2007) found that the corporate financial uncertainty levels measured based on cash flow volatility have a positive relationship with cash holdings, while Faulkender and Wang (2006) and Denis and Sibilkov (2010) have shown that cash holdings are more valuable for firms that are financially restricted. A firm with higher uncertainty can have higher amounts of cash assets, which is due to the strong agency conflict between managers and shareholders. One possibility is that the lack of uncertainty due to its regulatory role can reduce agency conflict. In such cases, firms with higher uncertainty may have higher levels of cash holdings (Dittmar, & Mahrt-Smith, 2007). Therefore, uncertainty can reduce the agency conflict that exists between managers and shareholders due to asymmetric information. In such cases, firms with higher uncertainty may also have lower amounts of cash holdings (Drobetz et al., 2010). Based on what was mentioned, the main question addressed in this study is stated as follows: What is the role of firm-level uncertainty in the relationship between cash holdings and financial leverage on stock returns, and also separately on the value of cash holdings of firms operating in the Iranian capital market?

Literature Review

In their study, Im et al. (2017) concluded that higher-uncertainty firms have a higher monetary value. This will increase the value of the firm's actual options, exacerbate financial constraints, and reduce the agency conflict. In another study, Chae and Lee (2018) showed that firms with higher distribution uncertainty have higher stock returns.

Acheampong et al. (2014) found that financial leverage had a negative effect on stock returns. The results of a study by Gao and Grinstein (2013) suggested that macro-level uncertainty such as interest rates, macroeconomic policies, and market risk premium lead to increased cash holdings. Ozdagli (2012) showed that market leverage is the key to changing the firm's returns. Bao et al. (2012) investigated the relationship between the effects of positive or negative cash flows on corporate cash holdings. Their results showed that when a firm has positive (negative) cash flows, it will have a lower (more) willingness to hold cash. Similarly, firms with limited financing compared to firms without financing limitation will be less willing to invest in new projects and finance unprofitable projects. Harford et al. (2012), in their study on investor insight and cash holdings, investigated the motivation of firms to maintain cash holdings, and found that firms that have longer-term investment opportunities hold more cash. They also showed that firms that have more opportunities to invest pay less interest to shareholders. In another study, Baum et al. (2007) showed that the liquid asset ratio of large firms, firms outside business groups, firms with low leverage, and firms with investments is highly sensitive to industry-level uncertainty changes.

Data and methodology

This study uses all publicly firms on Iranian stock exchange. Data base on records of financial statements and market data of all Iranian firms that are listed on Iran Stock Exchange, and that are subject to the regulations by the Capital Market Authority in Iran. . In addition, we use data from Iranian stock exchange for the period 2004–2018 to construct variables based on the information contained in financial statements.

The theoretical framework of the study is generally based on models proposed in the previous studies (Im et al., 2017; Chae & Lee, 2017; Ozdagli, 2012; Loncan & Caldeira, 2014). This framework was used to determine the relationship between excess stock returns, the value of cash holdings, and financial leverage through the degree of firm-level uncertainty. To this end, first, the effect of changes in cash holdings on excess stock returns was explored (Model 1) and then models 2 and 3 were used to examine the interaction of corporate uncertainty with financial leverage and cash holdings in relation to excess stock returns. Therefore, in order to achieve the above objective, the regression models (1) to (3) were used where the excess stock return was taken as dependent variables:

$$r_{it} - R_{pt} = \beta_0 + \beta_1 \Delta Cash_{it} + \beta_2 Lev_{i,t} + \beta_3 Cash_{i,t-1} + \beta_4 NetF_{i,t} + \beta_5 \Delta I_{i,t} + \beta_6 \Delta DPS_{i,t} + \varepsilon_{it} \quad (1)$$

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$$r_{it} - R_{pt} = \beta_0 + \beta_1 \Delta Cash_{it} + \beta_2 Lev_{i,t} + \beta_3 Cash_{i,t-1} + \beta_4 NetF_{i,t} + \beta_5 \Delta I_{i,t} + \beta_6 \Delta DPS_{i,t} + \beta_7 Lev_{it} \times D - HighUNC_{i,t} + \varepsilon_{it} \quad (3)$$

Where, $r_{it} - R_{pt}$ is a dependent variable representing the excess stock returns of firm i during the fiscal year and is calculated as the difference between the actual stock returns and stock market returns and $\Delta Cash_{i,t}$ is an independent variable showing the changes in

cash holdings of firm i during the fiscal year a . Other variables include changes in interest cost (ΔI), change in dividends (ΔDPS), lagged cash holdings ($Cash_{i,t-1}$), financial leverage (Lev), and net financing ($NetF$) during the fiscal year. Cash holdings are measured by $\Delta Cash_{i,t}$ regression coefficient, and are modeled as a linear function of high-uncertainty. In addition, $D - Highunc_{i,t}$ is a dummy independent variable which is equal to one when firm i in year t belongs to a group with high uncertainty, and is zero when firm i in year t belongs to a group with low uncertainty. Therefore, if the firm-level uncertainty in one year is greater than the average value in the period under study, the corresponding value is 1, otherwise it is set zero. Finally, Model 4 examines the effect of uncertainty on changes in cash holdings:

$$\Delta Cash_{it} = \beta_0 + \beta_1 Lev_{i,t} + \beta_2 Cash_{i,t-1} + \beta_3 D - HighUNC_{i,t} + \beta_4 Cash_{i,t-1} \times D - HighUNC_{i,t} + \varepsilon_{it} \quad (4)$$

Where β_r is the coefficient of $\Delta Cash_{i,t} \times D - Highunc_{i,t}$, which shows whether firms with high uncertainty have a higher or lower amount of cash holdings.

Empirical Results

Descriptive Statistics

Descriptive methods describe the research data by using descriptive statistics tools such as measures of central tendency and dispersion in the form of figures and tables. Table I shows the descriptive statistics of the research variables including 2280 firm/year observations (for 152 firms):

Table 1. Descriptive statistics of the research variables in the sample firms

Variables	Mean	Median	Max	Min	SD
$r_{it} - R_{pt}$	0.35	0.31	7.2	-0.3	1.2
$\Delta Cash_{it}$	0.670	0.002	0.37	-0.56	0.26
$Lev_{i,t}$	0.55	0.57	0.85	0.06	.020
$lNetF_{i,t}$	13.2	13.2	18.5	6.7	1.6
$\Delta RCost_{i,t}$	21185	1222	2053136	-2967490	269609
$\Delta DPS_{i,t}$	1.01	0.528	5.86	-11.77	6.166

Given that a combination of panel data is used to test the research hypotheses, the descriptive indicators provided in the table above can be divided into measures of central tendency and dispersion. Measures of central tendency include mean and median, while measures of dispersion include standard deviation and minimum and maximum values.

Regression Analysis

Tables 2 and 3 present the results of testing the research hypotheses. As shown in Table 2, the final effect shows the effect of a unit change in the explanatory variable unit on stock returns ($r_{it} - R_{pt}$). Eq. (1) examines the relationship of changes in cash holdings

and financial leverage with stock returns. As it can be seen, there is no significant relationship between changes in cash holdings and stock returns, while financial leverage has a positive effect on stock returns. In addition, Eq. (2) addresses the crossover effects between changes in cash holdings, high uncertainty as a dummy variable, and stock returns as a dependent variable. This crossover effect shows if the value of cash holdings in the firms with high uncertainty have a stronger effect on stock returns or not. In this model, there was a significant negative correlation between crossover variable and stock return as a dependent variable. The crossover variable has made the relationship between the changes in corporate cash holdings as the independent variable and stock returns to be positive and significant, but the financial leverage still retains its positive effect on excess stock returns. Finally, Eq. (3) examines the crossover effect of the financial leverage variable and high uncertainty with the excess stock returns. This crossover effect shows if financial leverage in the firms with high uncertainty have a stronger effect on stock returns or not. In this model, there was a significant relationship between crossover variable and stock returns. In other words, high uncertainty has a negative and significant effect on stock returns, but financial leverage, like as is the case for equations (1) and (2), and has had a positive effect on excess stock returns.

Table 2. A comparison of the model with excess stock returns as the dependent variable

Variables	Model I	Model II	Model III
Constant	0.77 (0.09)	0.61 (0.17)	0.47 (0.29)
$\Delta Cash_{it}$	- 0.44 (0.05)	- 2.8 (0.02)	0.007 (0.97)
$Lev_{i,t}$	0.44 (0.05)	0.58 (0.01)	0.95 (0.0001)
$Cash_{it-1}$	- 0.60 (0.54)	0.24 (0.81)	0.09 (0.92)
$lNetF_{i,t}$	- 0.05 (0.15)	- 0.04 (0.17)	- 0.02 (0.42)
$\Delta I_{i,t}$	-6.4 (0.69)	-6.084 (0.69)	-1.77 (0.27)
$\Delta DPS_{i,t}$	0.0001 (0.01)	0.0001 (0.01)	0.0001 (0.01)
$\Delta Cash_{it} \times D - HighUNC_{i,t}$	-	-3.4 (0.007)	-
$Lev_{i,t} \times D - HighUNC_{i,t}$	-	-	-0.95 (0.000)
AR(1)	0.25 (0.000)	0.24 (0.000)	0.28 (0.000)
R ²	0.08	0.09	0.15
F	8.58 (0.000)	8.43 (0.000)	14.3 (0.000)

(): The Values in parenthesis indicate a significant level.

In addition, Eq. (4) examines the relationship between high uncertainty and changes in cash holdings and the results indicated that there is a positive and significant relationship between uncertainty and changes in cash holdings. It is also shown that the crossover variable has a negative effect on the changes in cash holdings.

Table 3. Testing Model IV with the changes in cash holdings as the dependent variable

Variables	Model IV
Constant	-0.58 (0.000)
$Lev_{i,t}$	0.001 (0.000)
$Cash_{it-1}$	-0.62 (0.003)
$D - HighUNC_{i,t}$	0.04 (0.01)
$Cash_{it-1} \times D - HighUNC_{i,t}$	-0.32 (0.03)
AR(1)	0.67 (0.000)
R^2	0.25
F	166 (0.000)

(): The Values in parenthesis indicate a significant level.

Conclusion

The present study investigated the relationship between Cash Holdings, Financial Leverage, and Excess Stock Returns with the role of Firm-Level Uncertainty in firms listed in the Tehran Stock Exchange in order to help stakeholders to make sound decisions and judgments and use resources more efficiently. The results of the statistical analysis showed a significant relationship between changes in cash holdings and excess stock returns in the first three models. This effect was also significant in the second model only with the presence of the crossover effect of changes in cash holdings and high uncertainty on excess stock returns as the dependent variable. In other words, changes in cash holdings have a significant effect on excess stock returns and it can be said that further changes in cash holdings can lead to the formation of the agency conflict between managers and shareholders. This may increase the power of management and can harm the interests of shareholders. In other words, maintaining and making more changes in cash holdings will lead to an increase in the opportunity cost since cash funds have a low return rate and clearly affect stock returns and also corporate operating performance. This finding is in line with the results of a study by Im et al. (2017). The results of the present study also suggested that financial leverage had a positive effect on stock returns. This shows that when more debts are used in the firm's capital structure it will increase the firm's financial risk, and increasing financial risk, in turn, causes shareholders to expect higher returns, therefore the stock returns go up. It was also found that firm-level uncertainty has a positive and significant effect on changes in cash holdings. Accordingly,

it can be argued that a firm with higher uncertainty may have higher cash holdings due to severe fiscal constraints. In other words, cash holdings are more valuable for firms with financial constraints as a strong agency conflict between managers and shareholders. Based on this finding, it can be suggested that uncertainty increases the expected value and leads to more investment decisions. Therefore, when the firm's desirable decision is faced with a high level of uncertainty, the firm will reduce its current investment with related cash holdings and increase cash holdings associated with financing in subsequent periods. This finding is consistent with the results of a study by Im et al. (2017). Based on the findings of the study, it is suggested that since higher uncertainty also reflects a higher systemic risk, it is therefore important to take into account systematic risk in decisions made on working capital management and cash holding management. Investors are also recommended to pay attention to the firm-level uncertainty and stock return volatility as the higher uncertainty in stronger firms points to the identification of firms with more growth opportunities.

Future research directions

Most of the studies have certain limits and this research also contains several faults that might be exploited by future researchers. For a better outcome, future research might employ longitudinal analysis with experimental or longitudinal designs, rather than cross-sectional data. The source of the data is also one of the study's limitations. Data from several sources may be collected in future investigations, making them more objective and reducing the risk of biases. We suggest that future studies should look into relationship between firm-level uncertainty, cash conversion cycle and profitability in firms.

Author Contributions

The first author generated the idea of this research, developed research design, collected part of the required data, analysed the data, compiled the whole work, and reviewed the paper several time. The second author supervised the whole work gone through the whole work several times, and made many important corrections.

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